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Inventor(s): C. Venkatraman, et. al.

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Title: EMBEDDING WEB ACCESS FUNCTIONALITY INTO A
DEVICE FOR USER INTERFACE FUNCTIONS

Continuation Application of Application

Serial No.: 09/721,409

Filed: November 21, 2000

Continuation Application of Application

Serial No.: 09/387,278

Filed: August 31, 1999

Continuation Application of Application

Serial No.: 08/740,289

Filed: October 25, 1996

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Prior to the examination of the above-referenced application, please amend the application as follows:

IN THE SPECIFICATION

On page 1, line 1, insert:

This application is a continuation of Application No. 09/721,409, filed on November 21, 2000, which is a continuation of Application No. 09/387,278, filed on August 31, 1999, now U.S. Patent No. 6,170,007, which is a continuation of Application No. 08/740,289, filed on October 25, 1996, now U.S. Patent No. 5,956,487.

On page 5, please delete the first paragraph and insert therefor the following:

A solution for providing widely accessible, low cost and enhanced user interface functions for a device is disclosed. The solution involves embedding web access functionality into the device including a web server that provides a device web page. The device includes an embedded network interface that enables access to the device web page by a web browser. A user of the web browser accesses the user interface functions for the device through the device web page. The web server functionality may be implemented with existing circuitry in a device, such as an existing processor, memory, and input/output circuitry that normally perform device-specific functions, thereby avoiding the extra cost and space required for dedicated web server hardware.

Page 11, please delete the second paragraph and insert therefor:

In one embodiment, the device 10 is a printer device wherein the processor 200 and the memory 210 perform image rendering functions and the device-specific hardware 300 includes printer hardware and associated circuitry and wherein the input/output circuitry 220 provides network access to the printer device 10. The web server functionality is embedded into the printer device 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by using the existing input/output circuitry 220 such as Ethernet circuitry to transfer HTML files.

Page 12, please delete the second paragraph and insert therefor:

In yet another embodiment, the device 10 is a washing machine wherein the processor 200 and the memory 210 perform functions for controlling wash cycles. The device-specific hardware 300 includes hardware such as motors, valves, sensors, and associated circuitry. The web server functionality is embedded into the washing machine 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by adding the input/output circuitry to the device 10.

Page 20, please delete the first paragraph and insert therefor:

The web page 18 for the printer may also include manuals, parts lists, and other associated publications. These publications may be stored within the device 10 in, for example, a nonvolatile memory, or may be referenced elsewhere via hyperlinks contained in the web page 18. These publications contain dynamic information such as updated manuals as well as new and updated software driver routines for the device 10.

IN THE CLAIMS

Please cancel claims 1-32 without prejudice.

Please add the following claims:

33. (New) A mechanism for providing a web page for a copier, comprising:
a web server that generates a web page for the copier, the web page enabling control functions for the copier;
a network interface coupled to the web server;
a monitor coupled to the web server, wherein the monitor controls device-specific functions of the copier; and
wherein the mechanism is embedded in the copier.
34. (New) The mechanism of claim 33 wherein the monitor also monitors a set of information pertaining to the copier.
35. (New) The mechanism of claim 33 wherein the monitor performs control and information monitoring and logging.
36. (New) The mechanism of claim 33 wherein the monitor is implemented with software executed on a processor.
37. (New) The mechanism of claim 33 further comprising a control/monitor path coupled to the monitor.
38. (New) The mechanism of claim 33 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

39. (New) The mechanism of claim 33 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the memory contains software for servicing HTTP.

40. (New) The mechanism of claim 33 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory, and wherein the network interface has a hardware portion that is implemented on the single integrated circuit chip.

41. (New) The mechanism of claim 33 wherein the web server is implemented as a state machine.

42. (New) The mechanism of claim 33 wherein the web server includes a processor that executes software or firmware that services HTTP and that generates HTML formatted files.

43. (New) The mechanism of claim 33 wherein the web server includes a memory, and wherein the web page for the copier is stored in the memory.

44. (New) The mechanism of claim 33 wherein the web page for the copier is generated on the fly.

45. (New) The mechanism of claim 33 wherein the web page for the copier includes a page title, a header section, a set of ASCII text, a table section, and a set of hyperlinks.

46. (New) The mechanism of claim 33 wherein the web page for the copier includes multimedia files.

47. (New) The mechanism of claim 33 wherein the web page for the copier includes hyperlinks to manuals and parts lists.

48. (New) The mechanism of claim 33 wherein the web page for the copier includes publications that contain dynamic information.

49. (New) The mechanism of claim 33 wherein the web page for the copier includes publications that contain dynamic information, and wherein the dynamic information includes updated software driver routines for the copier.

50. (New) A mechanism for providing a web page for a printer, comprising:
a web server that generates a web page for the printer, the web page enabling control functions for the printer;
a network interface coupled to the web server;
a monitor coupled to the web server, wherein the monitor controls device-specific functions of the printer; and
wherein the mechanism is embedded in the printer.

51. (New) The mechanism of claim 50 wherein the printer web page includes hyperlinks for printer support functions, including information regarding ordering printer supplies.

52. (New) The mechanism of claim 50 wherein the printer web page includes a printer name, an administrator, and a location for the printer.

53. (New) The mechanism of claim 50 wherein the monitor also monitors a set of information pertaining to the printer.

54. (New) The mechanism of claim 50 wherein the monitor performs control and information monitoring and logging.

55. (New) The mechanism of claim 50 wherein the monitor is implemented with software executed on a processor.

56. (New) The mechanism of claim 50 further comprising a control/monitor path coupled to the monitor.

57. (New) The mechanism of claim 50 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

58. (New) A mechanism for providing a web page for a fax machine, comprising:

- a web server that generates a web page for the fax machine, the web page enabling control functions for the fax machine;

- a network interface coupled to the web server;

- a monitor coupled to the web server, wherein the monitor controls device-specific functions of the fax machine; and

- wherein the mechanism is embedded in the fax machine.

59. (New) The mechanism of claim 58 wherein the monitor also monitors a set of information pertaining to the fax machine.

60. (New) The mechanism of claim 58 wherein the monitor performs control and information monitoring and logging.

61. (New) The mechanism of claim 58 wherein the monitor is implemented with software executed on a processor.

62. (New) The mechanism of claim 58 further comprising a control/monitor path coupled to the monitor.

63. (New) The mechanism of claim 58 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

64. (New) A mechanism for providing a web page for a video player that reads video and audio information from a storage medium, comprising:

- a web server that generates a web page for the video player, the web page enabling control functions for the video player;
- a network interface coupled to the web server;
- a monitor coupled to the web server, wherein the monitor controls device-specific functions of the video player; and
- wherein the mechanism is embedded in the video player.

65. (New) The mechanism of claim 64 wherein the storage medium is an optical storage medium.

66. (New) The mechanism of claim 64 wherein the storage medium is magnetic tape.

67. (New) The mechanism of claim 64 wherein the video player is a video player/recorder that reads and writes video and audio information to an optical storage medium.
68. (New) The mechanism of claim 64 wherein the video player is a video player/recorder that reads and writes video and audio information to a magnetic tape storage medium.
69. (New) The mechanism of claim 64 wherein the monitor also monitors a set of information pertaining to the video player.
70. (New) The mechanism of claim 64 wherein the monitor performs control and information monitoring and logging.
71. (New) The mechanism of claim 64 wherein the monitor is implemented with software executed on a processor.
72. (New) The mechanism of claim 64 further comprising a control/monitor path coupled to the monitor.
73. (New) The mechanism of claim 64 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.
74. (New) A mechanism for providing a web page for a television, comprising:
a web server that generates a web page for the television, the web page enabling control functions for the television;

a network interface coupled to the web server;
a monitor coupled to the web server, wherein the monitor controls device-specific functions of the television; and
wherein the mechanism is embedded in the television.

75. (New) The mechanism of claim 74 wherein the monitor also monitors a set of information pertaining to the television.

76. (New) The mechanism of claim 74 wherein the monitor performs control and information monitoring and logging.

77. (New) The mechanism of claim 74 wherein the monitor is implemented with software executed on a processor.

78. (New) The mechanism of claim 74 further comprising a control/monitor path coupled to the monitor.

79. (New) The mechanism of claim 74 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

80. (New) A mechanism for providing a web page for a thermostat, comprising:
a web server that generates a web page for the thermostat, the web page enabling control functions for the thermostat;
a network interface coupled to the web server;
a monitor coupled to the web server, wherein the monitor controls device-specific functions of the thermostat; and
wherein the mechanism is embedded in the thermostat.

81. (New) The mechanism of claim 80 wherein the monitor also monitors a set of information pertaining to the thermostat.

82. (New) The mechanism of claim 80 wherein the monitor performs control and information monitoring and logging.

83. (New) The mechanism of claim 80 wherein the monitor is implemented with software executed on a processor.

84. (New) The mechanism of claim 80 further comprising a control/monitor path coupled to the monitor.

85. (New) The mechanism of claim 80 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

86. (New) A mechanism for providing a web page for a refrigerator, comprising:

- a web server that generates a web page for the refrigerator, the web page enabling control functions for the refrigerator;

- a network interface coupled to the web server;

- a monitor coupled to the web server, wherein the monitor controls device-specific functions of the refrigerator; and

- wherein the mechanism is embedded in the refrigerator.

87. (New) The mechanism of claim 86 wherein the monitor also monitors a set of information pertaining to the refrigerator.

88. (New) The mechanism of claim 86 wherein the monitor performs control and information monitoring and logging.

89. (New) The mechanism of claim 86 wherein the monitor is implemented with software executed on a processor.

90. (New) The mechanism of claim 86 further comprising a control/monitor path coupled to the monitor.

91. (New) The mechanism of claim 86 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

92. (New) A mechanism for providing a web page for a washing machine, comprising:

- a web server that generates a web page for the washing machine, the web page enabling control functions for the washing machine;

- a network interface coupled to the web server;

- a monitor coupled to the web server, wherein the monitor controls device-specific functions of the washing machine; and

- wherein the mechanism is embedded in the washing machine.

93. (New) The mechanism of claim 92 wherein the monitor also monitors a set of information pertaining to the washing machine.

94. (New) The mechanism of claim 92 wherein the monitor performs control and information monitoring and logging.

95. (New) The mechanism of claim 92 wherein the monitor is implemented with software executed on a processor.
96. (New) The mechanism of claim 92 further comprising a control/monitor path coupled to the monitor.
97. (New) The mechanism of claim 92 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.
98. (New) A mechanism for providing a web page for a disk drive, comprising:
 - a web server that generates a web page for the disk drive, the web page enabling control functions for the disk drive;
 - a network interface coupled to the web server;
 - a monitor coupled to the web server, wherein the monitor controls device-specific functions of the disk drive; and
 - wherein the mechanism is embedded in the disk drive.
99. (New) The mechanism of claim 98 wherein the monitor also monitors a set of information pertaining to the disk drive.
100. (New) The mechanism of claim 98 wherein the monitor performs control and information monitoring and logging.
101. (New) The mechanism of claim 98 wherein the monitor is implemented with software executed on a processor.

102. (New) The mechanism of claim 98 further comprising a control/monitor path coupled to the monitor.

103. (New) The mechanism of claim 98 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

104. (New) A mechanism for providing a web page for an oscilloscope, comprising:

a web server that generates a web page for the oscilloscope, the web page enabling control functions for the oscilloscope;

a network interface coupled to the web server;

a monitor coupled to the web server, wherein the monitor controls device-specific functions of the oscilloscope; and

wherein the mechanism is embedded in the oscilloscope.

105. (New) The mechanism of claim 104 wherein the monitor also monitors a set of information pertaining to the oscilloscope.

106. (New) The mechanism of claim 104 wherein the monitor performs control and information monitoring and logging.

107. (New) The mechanism of claim 104 wherein the monitor is implemented with software executed on a processor.

108. (New) The mechanism of claim 104 further comprising a control/monitor path coupled to the monitor.

109. (New) The mechanism of claim 104 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

110. (New) A mechanism for providing a web page for a spectrum analyzer, comprising:

a web server that generates a web page for the spectrum analyzer, the web page enabling control functions for the spectrum analyzer;

a network interface coupled to the web server;

a monitor coupled to the web server, wherein the monitor controls device-specific functions of the spectrum analyzer; and

wherein the mechanism is embedded in the spectrum analyzer.

111. (New) The mechanism of claim 110 wherein the monitor also monitors a set of information pertaining to the spectrum analyzer.

112. (New) The mechanism of claim 110 wherein the monitor performs control and information monitoring and logging.

113. (New) The mechanism of claim 110 wherein the monitor is implemented with software executed on a processor.

114. (New) The mechanism of claim 110 further comprising a control/monitor path coupled to the monitor.

115. (New) The mechanism of claim 110 wherein the web server is implemented in a single integrated circuit chip that includes a processor and a memory.

REMARKS

The specification has been amended to correct some typographical errors. New claims have been added to cover various embodiments of the invention. No new matter has been added. Applicants respectfully request allowance of this application.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Page 5, first paragraph

A solution for providing widely accessible, low cost and enhanced user interface functions for a device is disclosed. The solution involves embedding web access functionality into the device including a web server that provides a device web page. The device includes an embedded network interface that enables access to the device web page by a web browser. A user of the web browser accesses the user interface functions for the device through the device web page. The web server functionality may be implemented with existing circuitry in a device, such as an [existing] **existing** processor, memory, and input/output circuitry that normally perform device-specific functions, thereby avoiding the extra cost and space required for dedicated web server hardware.

Page 11, second paragraph

In one embodiment, the device 10 is a printer device wherein the processor 200 and the memory 210 [preform] **perform** image rendering functions and the device-specific hardware 300 includes printer hardware and associated circuitry and wherein the input/output circuitry 220 provides network access to the printer device 10. The web server functionality is embedded into the printer device 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by using the existing input/output circuitry 220 such as Ethernet circuitry to transfer HTML files.

Page 12, second paragraph

In yet another embodiment, the device 10 is a washing machine wherein the processor 200 and the memory 210 [preform] perform functions for controlling wash cycles. The device-specific hardware 300 includes hardware such as motors, valves, sensors, and associated circuitry. The web server functionality is embedded into the washing machine 10 by providing software or firmware for the processor 200 and by utilizing space available in the memory 210 and by adding the input/output circuitry to the [video] device 10.

Page 20, first paragraph

The web page 18 for the printer may also include manuals, parts lists, and other associated publications. These publications may be stored within the device 10 in, for example, a nonvolatile memory, or may be referenced elsewhere via hyperlinks contained in the web page 18. These publications contain dynamic information such as updated manuals as well as new and updated software driver routines for the video device 10.